



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
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U/R

SAD
19/08/13

6F9540V00131

Job Sheet 198829



Part No: 6F9540V00131

Job Qty: 1 pcs

Part Name: AW169 Upper Cutter Deflector Assembly



Part Weight: 0 lbs

Status: New

Job Created: 8/6/19

Job Tracking No:

Due Date: 12/20/19

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: URF18-746 DWG REV C IPP REV:A 13.11.13 NEW ISSUE DD VERF:JLM

Ship Via:

POSITIVE RECALL

EFFECTIVE 5/08/10 AUTH SAD
RELEASED 55 DATE MAR 27 2020
9-89 Priority: Medium
Concession Required

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
110	Packaging 1 - Pick Kit	1 pcs	12/20/19	0.00	0.00	0.00	Packaging 1 - 1	Sign-off DAS 72 9-89
							Packaging 1 - 2	
							Packaging 1 - 3	
							Packaging 1 - 4	
							Packaging 1 - 5	
							Packaging 1 - 6	
							Packaging 1 - 7	
							Packaging 1 - 8	
							Packaging 1 - 9	
							Packaging 1 - 10	
							Packaging 1 - 11	
							Packaging 1 - 12	
							Packaging 1 - 13	
							Packaging 1 - 14	
							Packaging 1 - 15	
							Packaging 1 - 16	
							Packaging 1 - 17	
							Packaging 1 - 18	
							Packaging 1 - 19	
							Packaging 1 - 20	
							Packaging 1 - 21	
							Packaging 1 - 22	
							Packaging 1 - 23	
							Packaging 1 - 24	
							Packaging 1 - 25	
							Packaging 1 - 26	
							Packaging 1 - 27	
							Packaging 1 - 28	
							Packaging 1 - 29	
							Packaging 1 - 30	
							Packaging 1 - 31	

DART AEROSPACE
 Container No: S260095
 Part: 6F9540V00131
 Job No: 198829
 Serial No/Batch: S260095
 Revision:
 Inspector:
 Exp Date:
 Instructions:
 Date: 03/03/20

Dart Aerospace Ltd.
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 Email: sales@dartaero.com
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				Packaging 1 - 32	
				Packaging 1 - 33	
				Packaging 1 - 34	
				Packaging 1 - 35	
				Packaging 1 - 36	
111	Packaging 1-1 - Pick Kit - B4B 1 pcs	12/20/19	0.00 0.00	Packaging 1 - 1 - B4B	DAS 69 9-89
				Packaging 1 - 2 - B4B	
				Packaging 1 - 3 - B4B	
				Packaging 1 - 4 - B4B	
				Packaging 1 - 5 - B4B	
				Packaging 1 - 6 - B4B	
				Packaging 1 - 7 - B4B	
				Packaging 1 - 8 - B4B	
				Packaging 1 - 9 - B4B	
				Packaging 1 - 10 - B4B	
				Packaging 1 - 11 - B4B	
				Packaging 1 - 12 - B4B	
				Packaging 1 - 13 - B4B	
				Packaging 1 - 14 - B4B	
				Packaging 1 - 15 - B4B	
				Packaging 1 - 16 - B4B	
				Packaging 1 - 17 - B4B	
				Packaging 1 - 18 - B4B	
				Packaging 1 - 19 - B4B	
				Packaging 1 - 20 - B4B	
				Packaging 1 - 21 - B4B	
				Packaging 1 - 22 - B4B	
				Packaging 1 - 23 - B4B	
				Packaging 1 - 24 - B4B	
				Packaging 1 - 25 - B4B	
				Packaging 1 - 26 - B4B	
				Packaging 1 - 27 - B4B	
				Packaging 1 - 28 - B4B	
				Packaging 1 - 29 - B4B	
				Packaging 1 - 30 - B4B	
				Packaging 1 - 31 - B4B	
				Packaging 1 - 32 - B4B	
				Packaging 1 - 33 - B4B	
				Packaging 1 - 34 - B4B	
				Packaging 1 - 35 - B4B	
				Packaging 1 - 36 - B4B	
120	QC 4 1 pcs	12/20/19	0.00 0.00	QC 4 - 28	DAS 72 9-89
				QC 4 - 58	
				QC 4 - 69	
				QC 4 - 9	
				QC 4 - 46	
				QC 4 - 68	
				QC 4 - 72	
				QC 4 - 74	
				QC 4 - 75	
130	Packaging 3-1 - Stock - B4B 1 pcs	12/20/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	

3/6/2019

[Dart Hawkesbury] Job Sheet - Lajeunesse, Marie

				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	DAS
				Packaging 3 - 25 - B4B	72
				Packaging 3 - 26 - B4B	9-89
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
135	DC - 1 - B4B	1 pcs	12/20/19	0.00 0.00	DC - 1 - B4B
					DC - 2 - B4B
140	QC 21 - FG	1 pcs	12/20/19	0.00 0.00	QC 21 - FG - 21
					QC 21 - FG - 70
					QC 21 - SA - 53
Part Op 110 - (Pick Kit) Descriptions: 120 - (QC4- 100% Inspect kits for completeness) 130 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP 6F9540V00131 135 - (Document Control) Photocopy bluefile per PPP D169-841-013 chg002 and create labels per 6F9540V00131 CHG002 140 - (QC21- Final Inspection - Work Order Release)					
Job BOM					
Part / Item	Component Name	Quantity	Operation	Container	
D169-841-013	AW169 Upper Cutter Deflector	1 pcs (1 ea)	110-Packaging 1 - Pick Kit	5258662	
Job Allocations					
Operation	Component Part	Required	Inventory	Allocated	
110-Packaging 1 - Pick Kit	D169-841-013	1	1	0	
Part Specifications					
Specifications could not be found.					

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Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No.

Route update only ☐

Job: <u>198829</u> Part No. <u>6F9540V00131</u>	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Eng. (Non-AW) ☐ Engineering ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Water Jet ☐ Large Fab ☐ Finishing ☐ Rec/Store/Packaging ☐ Supplier Quality ☐			
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Date :	Sequence #:	QTY Affected :	MRB (QSI042) DAS 51 19/08/13 9-89
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Description Work Order Deviation	Disposition	
Concession required before shipping for the following Parts D4824-1 D4823-1 D4857-1 D4944-1 D4824-1	Acceptable to ship with approved Concession	Completed By DAS 55 9-89 MAR 27 2020 Lead hand / Supervisor DAS 55 9-89 MAR 27 2020 QC / QA Coordinator DAS 55 9-89 MAR 27 2020

Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐	FAULT CATEGORY <table> <tr> <td>☐ Pressure/Forced</td> <td>☐ Contamination</td> <td>☐ Power Loss/Surge</td> <td>☐ Positioned Wrong</td> </tr> <tr> <td>☐ Bending</td> <td>☐ Misaligned/off center</td> <td>☐ Folio/Program</td> <td>☐ Outside Tolerance</td> </tr> <tr> <td>☐ Crushing</td> <td>☐ BOM/Route</td> <td>☐ Grain Direction</td> <td>☐ Drawing</td> </tr> <tr> <td>☐ Cracks</td> <td>☐ Broken/Damage/Defect</td> <td>☐ Weld</td> <td>☐ Finish</td> </tr> <tr> <td>☐ Crimp/Kink/Ripple/Wave/Twist</td> <td>☐ Incomplete/Unclear Instructions</td> <td>☐ Wrong Stock Pulled</td> <td>☐ Part Lost/Missing</td> </tr> <tr> <td>☐ Marks/Chatter</td> <td>☐ Drill Holes</td> <td>☐ Out of Sequence</td> <td>☐ Misread</td> </tr> <tr> <td>☐ Mislabeled</td> <td>☐ Fit/Function</td> <td>☐ Off-set/Set-up</td> <td></td> </tr> </table>				☐ Pressure/Forced	☐ Contamination	☐ Power Loss/Surge	☐ Positioned Wrong	☐ Bending	☐ Misaligned/off center	☐ Folio/Program	☐ Outside Tolerance	☐ Crushing	☐ BOM/Route	☐ Grain Direction	☐ Drawing	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Finish	☐ Crimp/Kink/Ripple/Wave/Twist	☐ Incomplete/Unclear Instructions	☐ Wrong Stock Pulled	☐ Part Lost/Missing	☐ Marks/Chatter	☐ Drill Holes	☐ Out of Sequence	☐ Misread	☐ Mislabeled	☐ Fit/Function	☐ Off-set/Set-up	
☐ Pressure/Forced	☐ Contamination	☐ Power Loss/Surge	☐ Positioned Wrong																													
☐ Bending	☐ Misaligned/off center	☐ Folio/Program	☐ Outside Tolerance																													
☐ Crushing	☐ BOM/Route	☐ Grain Direction	☐ Drawing																													
☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Finish																													
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☐ Marks/Chatter	☐ Drill Holes	☐ Out of Sequence	☐ Misread																													
☐ Mislabeled	☐ Fit/Function	☐ Off-set/Set-up																														
Other/Details:																																

		Concessione Fornitore				PAGINA 1 di 2	STAB. EMITTENTE Vergiate
NC Fornitore N.	AWC-039	Data	20.03.2020	Concessione	400000090350	Ordine	4801939434
P/N	6F9540V00131	Grado/Categoria	NC	Rev. disegno			
Descrizione Parte	PROTECTR, CCP ASSY UPPER	Quantità Lotto	4,000	Q.tà sotto conc.	4,000		
Coordinatore NC	GIORGIO BENZONI	A/C Model	AW6				
Fornitore	DART AEROSPACE LTD	Contratto					
Difetto MA01 - Materiale diverso dal richiesto - * 20.03.2020 09:26:16 GIORGIO BENZONI (39851) * See supplier concession AWC-039 attached Causa del Difetto							
				Ripetitività (stesso P/N-Cod.Difetto) NO ☐ SI ☒ (11)			
Valutazioni e proposte dell'ENGINEERING							
Valutazioni dell'Engineering compresi input dell'Esperto:				Rapp. Indagine n.		Rapp. Rispondenza n.	
* 23.03.2020 18:02:50 GENNARO MARGIOTTA (5907) * Considering the assessment and assumptions made by the supplier engineering the deviation is accepted. * Mark the part with concession number in order to keep trace of the							
				Segue in 2° pag.			
Classificazione Deviazione dal Type Design secondo EASA part 21A.91: Minore/B							
Effetti del difetto				Limitazioni			
	Prima eventuale riparazione	Dopo eventuale riparazione		☐ Si (specificare) ☒ NO			
Sicurezza	☐ SI	☐ SI	☐ NO				
Vita o durata	☐ SI	☐ SI	☐ NO				
Resistenza	☐ SI	☐ SI	☐ NO				
Prestazioni	☐ SI	☐ SI	☐ NO				
Intercambiabilità	☐ SI	☐ SI	☐ NO				
Affidabilità	☐ SI	☐ SI	☐ NO				
Manutenibilità	☐ SI	☐ SI	☐ NO				
Installabilità	☐ SI	☐ SI	☐ NO				
Testabilità	☐ SI	☐ SI	☐ NO				
Solo aspetto	☐ SI	☐ SI	☐ NO				
Nessun effetto	☒ SI	☐ SI	☐ NO				
Proposte di recupero:				Decisione di Impiego ☐ Usare riparato con riparazione specifica ☐ Usare riparato con riparazione nota ☒ Usare com'è ☐ Usare riparato per prove (vedi Limitaz.) ☐ Usare com'è per prove (vedi Limitazioni) ☐ Scartare			
Classificazione Concessione ☐ MAGGIORE ☒ MINORE				Ripresentare dopo riparazione ☐ SI ☒ NO			
Marcatura ☐ NO ☒ SI				Metodo: Indelible ink pen			
ATE	GENNARO MARGIOTTA	CPE		Data	23.03.2020		
Verifiche e prove da effettuare							
Registraz. della riparazione Con Ordine (WO) di riparazione ☐ Numero:							
Valutazione Riparazione:							
Decisioni finali							
S/N	Usare com'è (UTI)	Usare riparato (RIL)	Scartare (SCA)	S/N	Usare com'è (UTI)	Usare riparato (RIL)	Scartare (SCA)
S253884	☒	☐	☐		☐	☐	☐
S260095	☒	☐	☐		☐	☐	☐
S260925	☒	☐	☐		☐	☐	☐
S261048	☒	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
	☐	☐	☐		☐	☐	☐
Non Serializzati	Q.tà Usare com'è	4,000	Q.tà Usare riparato		Q.tà Scartare		
Funzione	ATE AW	CPE AW	Verifica della Riparazione	Qualità	Cliente	MOD/Rappresent. Istituzionale	
Firma	GENNARO MARGIOTTA			GIORGIO BENZONI			
Data	23.03.2020			26.03.2020			

NC Fornitore N.	AWC-039	Data	20.03.2020	Concessione	400000090350	Ordine	4801939434
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CAUSE DEL DIFETTO

- * C8C5 Metodo e Processi

VALUTAZIONI DELL'ENGINEERING

deviation.

- * The deviation must be mentioned by Dart during the process of the validation for change design.

Concession	QRS-107_F01 Issue 02	Page 1/3
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Supplier NC Number	AWC-039	Date	March 16,2020	LH NC Number	400000090350	Purchase Order	4801939434
LH PN	6F9540V00131	S/N / Batch N.	S261048 S253884 S260925 S260095	Grade/ Criticality	NC	LH DWG issue	B
P/N Description	Protector, CCP Assembly Upper			Batch Qty	4	Defective Qty	4
Supplier Name	Dart Aerospace LTD					Model	AW169
Defect(s) Description							

1. Gasket material for D4857-041 found on the D169-841-013 (LH PN 6F9540V00131) upper cutter deflector kit has been discontinued by the manufacturer.
2. D4857-041 (2x) and D4944-1 (4x), P/N 6F9540V00131, to be supplied without the 4x 5.33mm holes drilled per drawing. The operation of drilling is to be performed by a Leonardo operator as per attached production permit.
3. The material of the D4823-1 upper cutter deflector and D4824-1 upper cutter mount was deviated from the approved data. The parts were manufactured using aluminum plate per AMS-QQ-A-250/12 instead of aluminum bar. The substantiation for the deviation provided in the attached engineering evaluation.
4. The grain direction on the D4823-1 upper cutter deflector and D4824-1 upper cutter mount deflector was deviated from the approved Data. The substantiation for the deviation is provided in the attached engineering evaluation.

Department	Inspector	Signature	Date
Quality Assurance	55 9-89		March 16, 2020

Defect(s) Cause

1. Discontinued 8623K358 / 8623K338 gasket material.
2. Due to issue regarding QJ 200001282441 Dart Aerospace Drawing requirements and requirements specified in Leonardo's 3D model parts are to be supplied to Leonardo without the Ø5.33mm / Ø.210" holes drilled per drawing D4857. Previous parts provided the hole pattern do not match the A/C structure.
3. To facilitate manufacture, Dart would like to modify the material on the approved drawing to manufacture the parts using aluminum plate per AMS-QQ-A-250/12.
4. To minimize material waste, Dart would like to modify the grain direction on the approved drawing.

Department	Inspector	Signature	Date
Quality Assurance	55 9-89		March 16, 2020

Concession	QRS-107_F01 Issue 02	Page 2/3
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Corrective Action				
Dart requests Leonardo Helicopters to accept the modified parts as described in this Concession. Dart is in the process of updating the drawings for approval by Leonardo Helicopters for future production.				
Department	Inspector	Signature	Date	Foreseen implementation date
Quality Assurance	DAS 55 9-89		March 16, 2020	

Concession	QRS-107_F01 Issue 02	Page 3/3
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For Suppliers approved as "MANUFACTURER" only

Supplier ENGINEERING evaluation and proposal

Investigation Report n: NCR17-6591

Compliance Report n.

1. Part number DSP1135M will replace the existing material. DSP1135M meets ASTM D1056, AMS3195, Mil-R-46089, Mil-R-6130, and Mil Std 670 TE12 Specifications. The material callouts on D5117 drawings have been updated to reflect this. No other change to design or certification data is required. This change is classified by Dart Aerospace as a minor change
2. No design changes. Removing the holes from the D4857-041 Deflectors and having them drilled during installation will prevent mismatched holes during installation.
3. In reference to Structural Substantiation Report DA169-4 page 48, the cable cutter system (CCS) was analysed using 7075-T6 aluminum sheet AMS-QQ-A-250/12. Therefore, manufacture of CCS parts using AMS-QQ-A-250/12 material has no effect on the structural substantiation.
4. Per DA169-4, the minimum margin of safety for the D4823-1 Upper Cutter Deflector and D4824-1 Upper Cutter Mount is 0.15 (page 66, 15 degree cutting strike on mount) which corresponds with a maximum stress of 61.9 ksi.
5. In reference to MMPDS-07 Tables 3.7.9.0 (b2) & (b3), the minimum yield strength of AMS-QQ-A-250/12 plate between 0.250"-2.000" thick in either the L or LT grain direction is 64 ksi (7075-T62 in longitudinal grain direction).
Repeating the margin of safety calculation in DA169-4 for 64 ksi material strength:

$$MS = (\text{Yield Strength} / \text{Maximum Load}) - 1$$

$$= (64 \text{ ksi} / 61.9 \text{ ksi}) - 1$$

$$= 0.03$$

The margin of safety is positive. Therefore, the grain direction can be rotated in the L – LT plane with no effect on the strength substantiation of the D4823

Defect Effects			Limitations after repair
	Before any repair	After any repair	
Safety	☐ yes	☐ yes ☐ no	☐ yes (specify) ☐ no
Life	☐ yes	☐ yes ☐ no	
Strength	☐ yes	☐ yes ☐ no	
Performance	☐ yes	☐ yes ☐ no	
Interchangeability	☐ yes	☐ yes ☐ no	
Reliability	☐ yes	☐ yes ☐ no	
Maintainability	☐ yes	☐ yes ☐ no	
Installability	☐ yes	☐ yes ☐ no	
Only Aspect	☐ yes	☐ yes ☐ no	
Repair Proposal			